

FLIGHT

The
AIRCRAFT
ENGINEER
and
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 775. (No. 44, Vol. XV.)

NOVEMBER 1, 1923

Weekly, Price 6d.
Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2

Telegrams: Truditor, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* European subscriptions must be remitted in British currency

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

Nov. 1	Aero Golfing Society's Autumn Meeting at Weybridge.
Nov. 1	"Present Developments in Aircraft Instruments," by Major Wimperis, before R.Ae.S.
Nov. 9	"Soaring Flight," by Dr. E. H. Hankin, before I.Ae.E.
Nov. 10	Display by Civil and Service Aeroplanes at Croydon.
Nov. 15	"The Thermodynamics of Aircraft Engines," by Mr. H. R. Ricardo, before R.Ae.S.
Nov. 29	"Airmanship at Sea," by Sqd.-Ldr. Maycock
Nov. 30	"The Result of Twelve Years' Welded Tube Construction and the Development of Cantilever Wings," by A. H. G. Fokker, before, I.Ae.E.
Dec. 1	Entries close for French Aero Engine Competition
Dec. 5	R.A.F. Wireless Re-union.
Dec. 9	"Water-Cooled Aero Engines," by A. J. Rowledge, before I.Ae.E.
Dec. 13	"Air Strategy," by Wing Cmdr. Edmonds
Dec. 14	"Leader Cable Systems for Electrical Steering of Aeroplanes," by J. Gray, before I.Ae.E.
1924	
Jan. 10	"Materials from the Aeronautical Point of View," by Dr. Aitchison and Mr. North
Jan. 24	"Fabric and Dopes," by Dr. Ramsbottom

EDITORIAL COMMENT.



REGARDING the light 'plane demonstrations at Hendon on Saturday last as a "first night" performance, the Lympne competitions a short while ago being the "dress rehearsal," it can be stated that, although the "house" was not full, the quality of the show was excellent. The whole thing was very much of an impromptu affair, having been decided upon at very short notice, thus giving no time for adequately advertising the meeting, whilst a further "gate" handicap was found in the weather. Nevertheless, it is quite certain that those who went to Hendon on Saturday did not regret it, and we think it probable that the majority came away with the feeling that somehow, in some mysterious fashion, the meeting was more satisfying than have been the majority of flying meetings held of recent years. The intimacy which the relatively low speed and general handiness of the light 'plane makes possible has a very strong appeal, and we think it more than likely that next year meetings for light aeroplanes, held at frequent intervals at Hendon, would do much to re-awaken that interest in flying which the general public showed so clearly in the years preceding the War, but which appears to have almost vanished during the last couple of years.

It has often been stated by those at the head of our air organisations that what we should aim at is to develop in the public the "air sense," the interest in and understanding of what air power means to the Empire. Surely nothing could be more calculated to develop and strengthen that interest than meetings held frequently, and not in London alone, but all over the country. The interest having been aroused, the understanding would follow in due course. Now the light 'plane combines in an extraordinary degree the two essentials: interest and cheapness. Even with the present cost of building light 'planes the expense is negligible compared with that of a *pukka* aeroplane. This is merely another way of saying that the prizes offered for competitions of such machines need not be over large to attract a goodly number of entries. We are now referring to competitions for machines

already in existence, and not to prizes to be offered in order to develop a new type, such as the two-seater of 1924. We think that if the Royal Aero Club were to approach the corporations of a number of towns in the kingdom it should not be a difficult matter to get most of these to offer sufficient amounts of prizes for competitions to be held in the different localities. In this manner several useful ends would seem to be served. To begin with, the general public all over the kingdom would have an opportunity of seeing the latest development in aircraft, and it is probable that one result would be the establishment of light 'plane clubs at various centres. Once that end was attained it would mean the thin end of the wedge, and lead to a general interest in flying, which is the one great desideratum of those responsible for our air development. The stimulus that would thus be given to interest in the Auxiliary or Territorial Air Force should be very considerable. Secondly, the designers and manufacturers of light 'planes would gain a great deal of valuable practical experience, while an opportunity would be afforded a fair number of pilots to keep their hands in. Later on it would probably be possible to hold a Circuit of Britain for light aeroplanes. A similar contest is already planned by France for next year, when it is intended to hold a "Tour de France pour Aviettes," the conditions of which are now being drawn up.

Next Year's Competitions

Already aircraft designers are complaining of the delay in announcing what is to be the limit of engine capacity allowed for next year's light two-seaters. In our Light 'Plane and Glider Notes this week we refer to this subject, and it is pointed out that the opinion of designers is by no means unanimous. Some suggest 1,100 c.c. as being sufficient, while others go so far as to ask for 2,000 c.c. Personally we incline to the lower figure, as one object of developing the light 'plane should be increased efficiency. As soon as a reasonably large engine is permitted the question of economy is pushed into the background, and before we know where we are we shall be repeating the history of the years before and during the War, when extra performance was obtained by piling on power rather than trying to improve the aerodynamic and structural efficiency

R.A.F. Memorial Fund

At a meeting of the Executive Committee of the above Fund, held at Iddesleigh House, Caxton Street, on October 17, there were present: The Right Hon. Lord Hugh Cecil (Chairman), Dame Helen Gwynne-Vaughan, Mrs. Barrington-Kennett, Mrs. L. M. K. Pratt-Barlow, Sir Charles McLeod (in the chair from 3.45 p.m.), Air Vice-Marshal J. F. A. Higgins, Air Vice-Marshal Sir A. V. Vyvyan, Mr. F. E. Rosher, and Lieut.-Commander H. E. Perrin.

The amount of grants sanctioned by the Committee since the previous meeting, amounting to £1,200 5s. 2d., was approved. The number of cases dealt with by the Grants Sub-Committee and by the Secretary was 127.

Letters were reported from the Private Secretary to H.R.H. the Prince of Wales, and from the Comptroller to H.R.H. the Duke of York, thanking the Committee for the resolutions passed on July 25 last respecting the unveiling ceremony of the War memorial, and letters of thanks from Sir Reginald Blomfield, R.A., architect of the Memorial, and from Mr. W. Reid Dick, sculptor. The Secretary stated that, at the request of the Air Ministry, two photographs of the unveiling ceremony, and a newspaper extract from *The Times*, descriptive of the ceremony, had been forwarded for record and custody to the Imperial War Museum, Crystal Palace, and had been suitably acknowledged.

The Committee unanimously approved of a suggestion that a wreath should be laid at the foot of the R.A.F. Memorial on

of machines. It is so much easier to get the performance that way than by painstaking work on design, and we are afraid that if a 2,000 c.c. engine is allowed the resulting progress will be very small. We therefore suggest that for the competitions at any rate the capacity should not exceed 1,100 c.c. If we cannot produce a good two-seater with an engine of that size it seems to us that we might as well give up the idea of the cheap two-seater altogether.

Light 'Planes and the Air Ministry

At the moment the whole question of the future of the light aeroplane is intimately bound up in, one might almost say entirely dependent upon, the attitude of the Air Ministry. From Sir Samuel Hoare we have already heard that he and his technical advisers were much impressed by the performances at Lympne, and would take every advantage of the latest development in connection with the R.A.F. and the Reserve; but an equally important phase of the subject is the civilian side. A number of questions remain to be settled before firms can proceed with the design and construction of light aeroplanes. We have repeatedly referred to the question of airworthiness certificates, asking that the fee should be lowered. There is, however, the no less important problem of examination by a ground engineer before every flight, the question of log books, the question of pilot's licence, and a number of other things that have to be settled before any individual is likely to place an order with a firm for a light aeroplane. So long as a man does not know whether or not he would be permitted to fly his machine he is not inclined to commit himself financially. Much the same remarks apply to the formation of light 'plane clubs, although in the latter case most of the flying would probably be done in the neighbourhood of an aerodrome, in which case no great difficulty should be experienced in getting Air Ministry permission. It is getting very belated for the Air Ministry to give a ruling on these matters. In any case the regulations should be such as to give the greatest possible amount of freedom from interference, provided always that public safety is not endangered.

The risk, if any, would be almost entirely confined to the pilot himself, and therefore restrictions should be reduced to a minimum.

the Victoria Embankment on Sunday, November 11 next, being Armistice Day

The Committee had before them some very excellent photographs, taken from the air by an R.A.F. officer, and which, with the approval of the Air Ministry and His Majesty's Stationery Office, it is proposed should later be sold at a cost, which would leave some small balance towards the work of the Fund, and it is hoped to put this scheme into operation in a very short time.

It was announced that His Grace the Duke of Sutherland, Under-Secretary of State for Air, had consented to be nominated as a Vice-President of the Fund; and Air Commodore A. E. Borton, C.B., the new Commandant of the R.A.F. Cadet College, Cranwell, was invited to become a member of the Executive Committee on his assuming his new command, in the place of Air Commodore C. A. H. Longcroft.

The Beaumont Cup Race

THE race for the Beaumont Cup, which was to have been flown at Istres on October 14, was abandoned, as the only machine to put in an appearance at the starting line was the Gourdon-Lescaur monoplane, fitted with a 400 h.p. Bristol "Jupiter" engine. It may be of interest to note that a trial flight with this machine over the 50 km. hexagonal course was completed in 9½ minutes—a speed of 319 km. (198 miles) p.h. As the course contained two very sharp turns, it is estimated that the total distance covered was 55 km., giving a speed of 220 m.p.h.

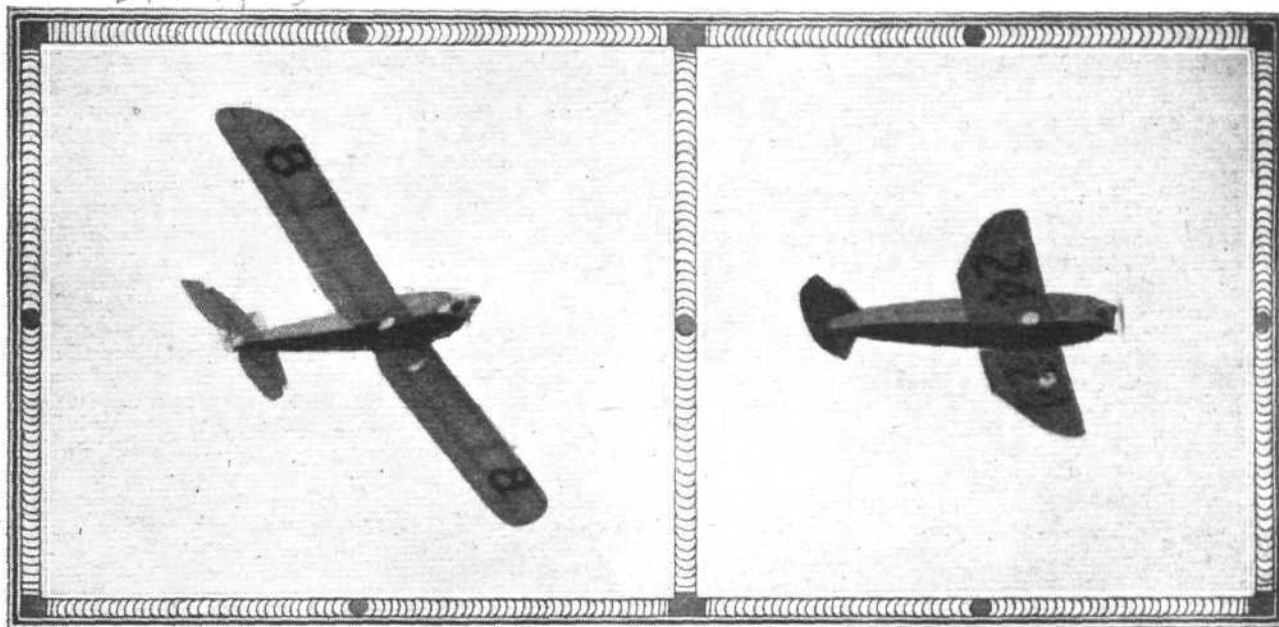
LIGHT 'PLANES AT HENDON

First Meeting a Great Success

PLEASANT recollections of the good old days of "Flying at Hendon" were reflected, in a small way perhaps, in the Light 'Plane Demonstration held at the London Aerodrome, Hendon, last Saturday. The Royal Aero Club, who organised this meeting, are to be congratulated on having been the means of providing this opportunity of ascertaining what can be done in the way of light 'plane race meetings—and also in enabling Londoners to witness this latest development of aeroplane design. It was, also, an extremely sporting and

serious aims in life. We have now to observe it, so to speak, from a distance, with a mixture of pride and awe; but in the light 'plane we have a new youngster, one we can "get close up to," pat on the wings and "pet," and follow its less hurricane-like antics with pleasure.

If Saturday's meeting was any guide, we can see next summer giving us a number of successful and enjoyable week-end light 'plane meetings at Hendon, so that, in view of the fact that the "Underground" will have a station just



WINNING LIGHT 'PLANES AT HENDON : On the left, Capt. H. S. Broad on the D.H.53 monoplane (Blackburne engine), winner of the Handicap Race, and, on the right, Capt. N. Macmillan on Parnall "Pixie II," winner of the Speed Contest.

encouraging action on the part of Sir Charles C. Wakefield in presenting the prizes, of £50 each, for the three events arranged for the afternoon's demonstration.

Although, under the circumstances, weather conditions were very unfavourable, Saturday's meeting was a great success, in spite of the fact that it was more or less an impromptu affair. To our way of thinking, it indicated that there are immense possibilities in the light 'plane as regards a revival of the old-time popular flying meetings, races, etc., for somehow or other it seems to us that the aeroplane has now "grown up" and got beyond the playful stage—so entertaining to us in the days of its youth—and left us for more

outside the aerodrome, a popular revival of the Hendon flying meetings is not at all unlikely.

As we previously mentioned, the weather conditions on Saturday were by no means ideal. Firstly, it was so bad in the morning all over London that many hundreds of people must have been kept from venturing out to Hendon. Secondly, although by noon the weather cleared up, there was still a very strong 30 m.p.h. wind blowing, with frequent gusts in the neighbourhood of 50 m.p.h. In spite of this, however, nine machines participated in the afternoon's demonstration, and, buffeted about though they were, they came through the ordeal in fine style and without a single mishap. Only one



LIGHT 'PLANES AT HENDON : A general view of the "Paddock"; in the foreground the Parnall "Pixie II" speed 'bus.

event down on the programme, the starting and landing competition (postponed from the Lympne competitions) for a prize of £50, presented by Sir Charles Wakefield, was cancelled.

Amongst those present were Air Vice-Marshal Sir W. G. H. Salmond, who acted as judge; Lord Edward Grosvenor and Lieut.-Col. F. K. McClean, A.F.C., who acted as stewards; and Lieut.-Col. Ogilvie (clerk of the course), and many old friends, including Marcel Desoutter.

The proceedings opened with some really wonderful exhibition flying, both varied in character and exciting. The first up was Capt. H. S. Broad, on the D.H.53 monoplane, fitted with a Blackburne engine. At first it was thought that the "bumps" were getting the better of him, until it was realised the alarming dips, dives, banks and rolls were intentional! Then he looped, the machine going over on the Broad of its back with perfect ease. Concluding his stunts, the pilot executed a splendid landing; this machine, by the way, handles remarkably well on the ground.

J. H. James was the second man up, and this time we had a fine exhibition of steeply-banked turns, Immelmans, etc., on the A.N.E.C. monoplane, also fitted with a Blackburne engine. A remarkable feature of these exhibitions was the absence of engine "roar," which one has usually been accustomed to when watching aerobatics; in fact, except for the hefty bark of the Parnall "Pixie's" Douglas, these light 'planes appear ridiculously insignificant when judged by the noise they make. We suggest that it might add to their "importance" if loud speakers were fitted to their exhausts!

However, to continue with the meeting, Capt. S. F. Cockerell in the meanwhile ascended in the Vickers "Viget" biplane, fitted with a Douglas engine. His particular speciality was to head into the wind and soar heavenwards, lark-like, without

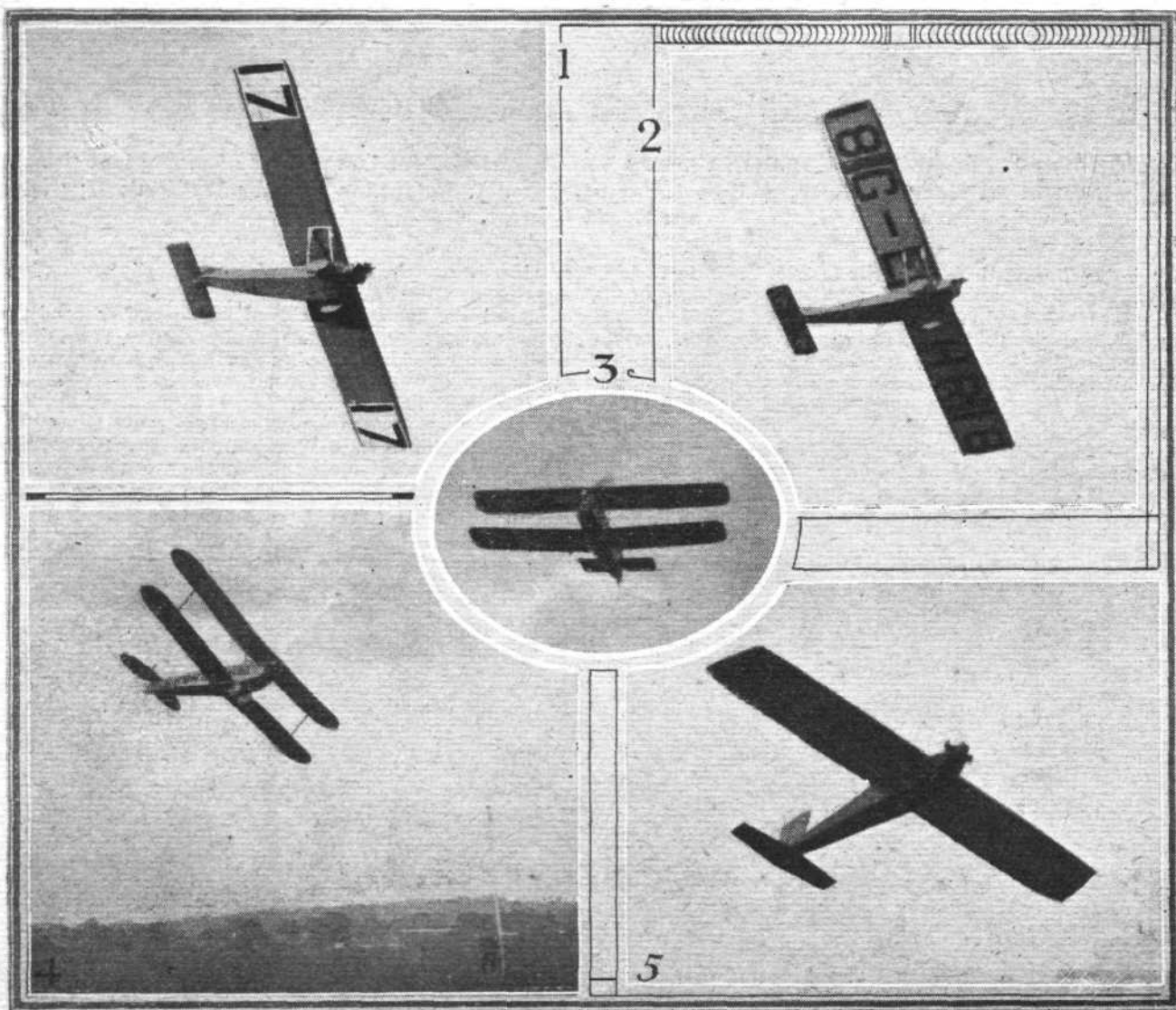
appreciably changing his position over a particular spot on the aerodrome. This recalled to mind the occasion many years ago at Hendon when Walter Brock went up during a gale in the little 35 h.p. "Dep" monoplane—except in this case Brock actually progressed backwards!

After these exhibition flights the machines were wheeled out to the centre of the aerodrome and lined up for the handicap race for the Wakefield prize of £50. This race was flown in three heats and a final, the course in each case being over five laps round the aerodrome, a distance of about 7½ miles.

Three started in the first heat, in the following order: F.O. H. A. Hamersley, on the Avro biplane (Douglas); Major H. Hemming, on the D.H.53 monoplane (Blackburne); and Bert Hinkler, on the Avro monoplane (Blackburne). Hinkler had trouble on the first lap and dropped out of the race, but the other two completed the five laps. Both appeared to have a very rough time of it, especially cross wind. Hamersley flew a fine course, hugging the "sticks" in grand style and coming down low on his last two laps. Hemming flew a trifle wider and higher, and appeared to gain somewhat on Hamersley, but failed to pass him, so the latter won the first heat.

Three more started in the second heat as follows: Capt. Cockerell, on the Vickers "Viget" (Douglas); Capt. Broad, on the D.H.53 (Blackburne); and M. W. Piercey, on the A.N.E.C. monoplane (Blackburne), entered by Hubert Blundell. Cockerell, much to everyone's surprise, instead of turning into the course—the machines started facing the enclosure—headed straight on over the enclosure and out of the aerodrome, eventually returning and landing. So once again two remained to finish the course. Broad kept ahead of Piercey throughout, although the latter caught up remarkably well, with the result that there was a very close finish.

The third heat was a splendid race, providing several



LIGHT 'PLANES AT HENDON: 1. James on the Addlestone A.N.E.C. monoplane (Blackburne engine). 2. Piercey on Hubert Blundell's A.N.E.C. monoplane (Blackburne engine). 3. Cockerell "power-soaring" on the Vickers "Viget" biplane (Douglas engine). 4. Hamersley on the Avro biplane (Douglas engine). 5. Raynham on the Handasyde monoplane (Douglas engine).

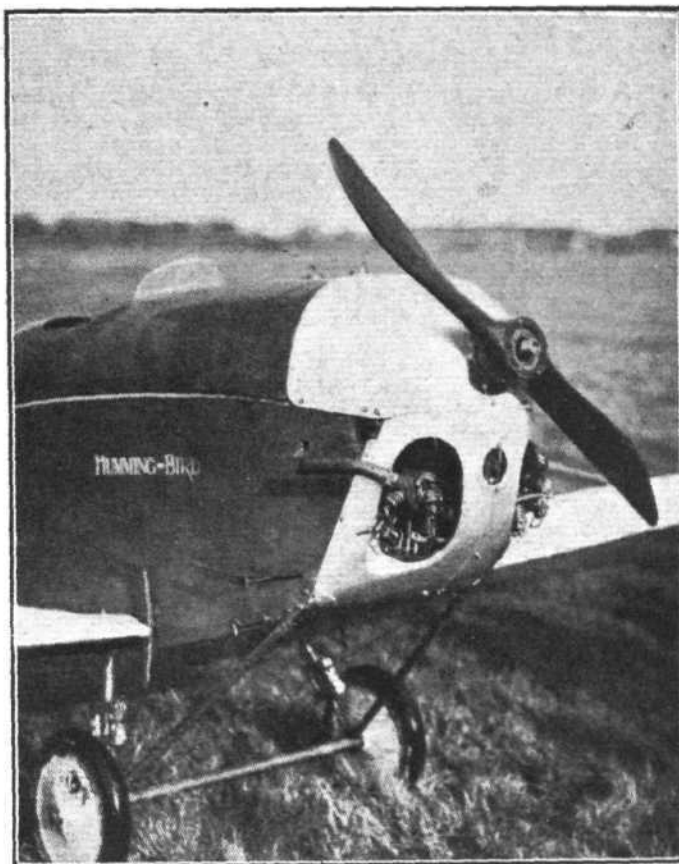
exciting incidents and some fine piloting. Three more started in this heat, viz.: F. P. Raynham, on the Handasyde monoplane (Douglas); "Jimmy" James, on the Addlestone A.N.E.C. monoplane (Blackburne); and Capt. Norman Macmillan, on the Parnall "Pixie II" monoplane (Douglas). The feature of this heat was undoubtedly the magnificent banking round the pylons by James. An exciting incident occurred when James started just as Raynham was completing his first lap, some skilful piloting on the part of both pilots enabling them to sort each other out safely. All three pilots maintained their respective positions until towards the end, when James overhauled Raynham, and thus obtained first place.

The final proved to be another good race, in which the piloting was very fine. The starters were: Hamersley, on the Avro biplane; Broad, on the D.H.; and James, on the A.N.E.C. For the first two laps all three retained the positions given, but on the third lap Broad passed Hamersley and obtained the lead, which he retained up to the finish. On the last lap James gained the second position, so the result of the handicap race was, therefore: First, Broad; second, James; and third, Hamersley.

After this race, by way of a change, we had the opportunity of seeing a grown-up aeroplane perform, for Raynham departed on his Martinsyde.

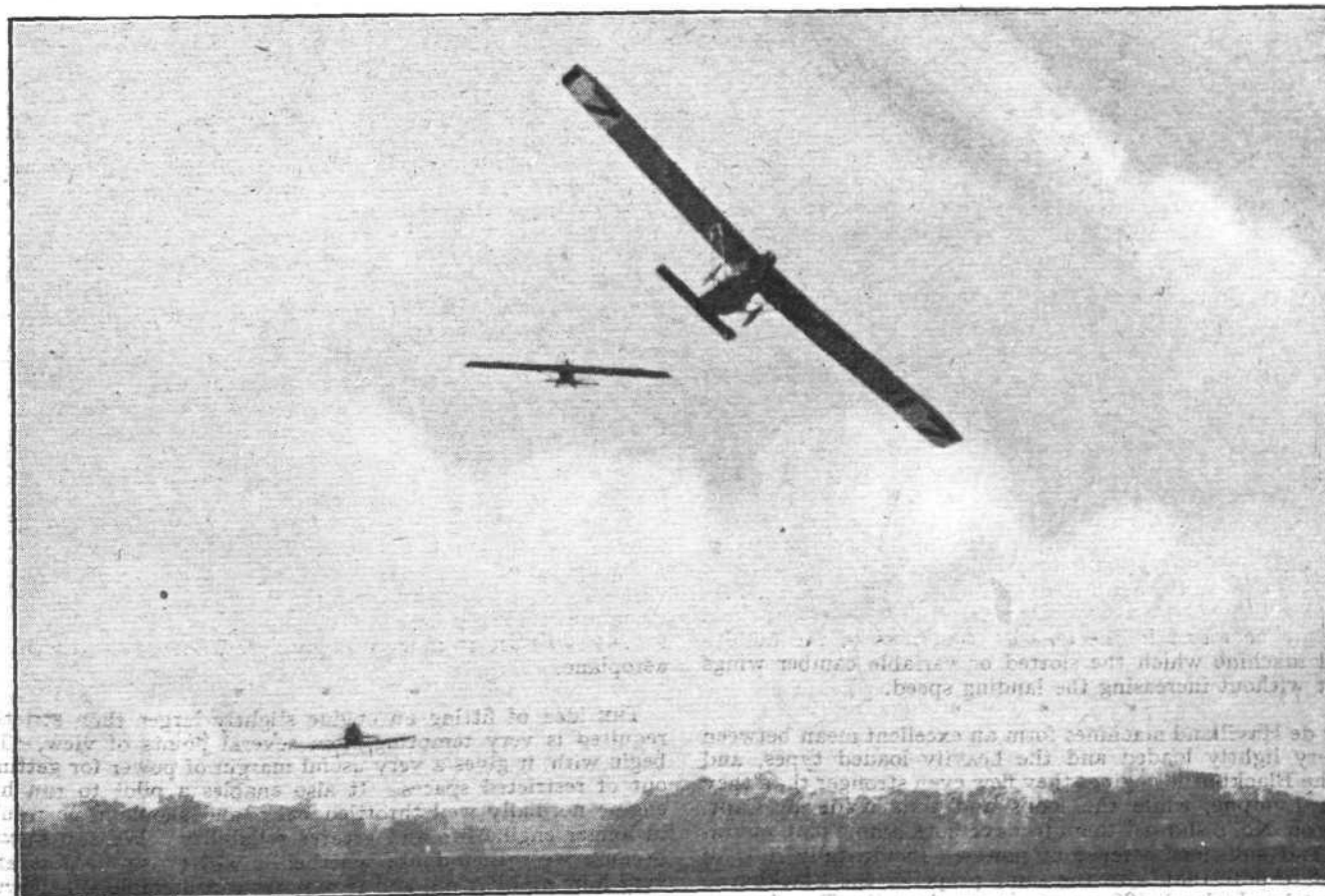
The final event was a speed contest over five laps of the aerodrome for a prize of £50, presented by Sir Charles Wakefield, in which the competitors were started together, the winner being the one which, having properly completed the course, was the first to cross the finishing line. There were four starters in this event, as follows: Broad, on the D.H.53; Hemming, on A. S. Butler's D.H.53; Macmillan, on Parnall "Pixie II"; and Piercey, on the A.N.E.C. At the end of the first lap Broad was leading, with Macmillan close behind, Piercey came next, and Hemming last. On the second lap Macmillan obtained the lead and started to overhaul Hemming, who was the last man in this lap. From this time it was difficult to place the various competitors, for the "Pixie," like the sheep which would not be counted, kept overlapping the others in a confusing manner. However, it was obvious that Macmillan was the winner, it being given out that Piercey was second and Hemming third. Broad dropped out on the third lap.

By this time it was getting late, and so the proceedings were brought to a close, and the promising youngsters put to bed. The demonstration was in every way a great success,



THE D.H.53 LIGHT MONOPLANE AT HENDON
A "close-up" of the inverted Blackburne engine.

and the light 'plane has certainly made good. It was, perhaps, a pity that the English Electric Company's "Wrens" did not join in the fun. Before concluding our remarks, we would like to express our admiration for the way in which the Blackburne engines did their duty, this being a prime factor in the light 'plane development.



LIGHT PLANES AT HENDON: "Jimmy" James banking—and leading—in the third heat of the Handicap Race. Close behind are F. P. Raynham (left) on the Handasyde and (right) Capt. Macmillan on Parnall "Pixie II."

LIGHT 'PLANE AND GLIDER NOTES

Those wishing to get in touch with others interested in matters relating to gliding and the construction of gliders are invited to write to the Editor of FLIGHT, who will be pleased to publish such communications on this page, in order to bring together those who would like to co-operate, either in forming gliding clubs or in private collaboration.

IN spite of bad weather and scant publicity the race meeting at Hendon for light aeroplanes was a great success. The attendance, it is true, was not a large one, but it was a very interested one, and there can, we think, be no doubt that next summer, with a tube station in Collindale Avenue, similar meetings will attract large crowds. The meeting is fully dealt with elsewhere in this issue, and in these notes it is only proposed to refer to certain aspects of the demonstrations which seem to affect the light 'plane as a class. The weather was very boisterous, so much so in fact that it is very doubtful if a race around the pylons could have been held with aeroplanes of any other type. The modern fast machine is difficult to get around the sharp turns without losing a lot of ground. The light 'plane, on the other hand, can be banked around in a surprisingly small radius, as was demonstrated many times by several of the pilots on Saturday, notably by James on the A.N.E.C. Secondly, the amazing controllability of the light 'plane enabled pilots to fly fairly low without any real danger of being blown to the ground, although at times the flying looked alarming enough to those who do not yet know the controllability which the light aeroplane possesses.

THE take-off and landing competition could not very well be held, as the strong and gusty wind would have made it a somewhat risky business to fly machines at or near their stalling angle in such turbulent air. Nevertheless, the fact that during the whole afternoon not a single bad landing was made speaks well for the new type of aircraft, and indicates that with a little further development we may hope to produce machines which even a pilot of very moderate skill can land with perfect safety under normal weather conditions.

A FEW observations on the behaviour of the machines may be of interest. The lightest machine flying in the races was the Avro biplane, with 500 c.c. Douglas engine. Although normally this machine is fairly stable (Hammersley has flown it "hands off" on several occasions), it was naturally buffeted about a good deal, but the controllability was such that Hammersley felt justified in flying very low so as to keep out of the stronger wind at greater heights. The very thin biplane wings seemed to deflect a good deal in the gusts, but, although this may appear somewhat alarming, it should be remembered that it is impossible to prevent a thin beam from deflecting under load, and that for a given deflection the thin spar is naturally stressed less than a thick one. It would, however, seem that if the type is to be continued it might be better to employ a different section, allowing slightly deeper spars to be used.

AT the other end of the scale, as regards wing loading, we had the Parnall "Pixie II," with 750 c.c. Douglas engine. The wing loading of this machine is close on 8 lbs./sq. ft., and it was noticeable that the "Pixie" was not so greatly affected by the gusts as were some of the more lightly loaded machines. This was, of course, to be expected, and provides an illustration of the advantage of high wing loading in strong, gusty winds. Incidentally, it also brought out an advantage of the variable area wing—or its equivalent, the slotted wing—which is not, perhaps, always given the attention that it seems to merit. Generally the claims advanced for the slotted wing, or variable camber wing, or combination of the two, is that a greater top speed is obtained while the landing speed remains the same. It would appear that an even greater practical gain may be found in the greater steadiness of the highly-loaded machine which the slotted or variable camber wings permit without increasing the landing speed.

THE de Havilland machines form an excellent mean between the very lightly loaded and the heavily loaded types, and with the Blackburne engines they flew even stronger than they did at Lympne, while the loops and rolls made by Capt. Broad on No. 8 showed them to have both ample manoeuvrability and sufficient reserve of power. Incidentally it is of interest to note that with the same propeller the Blackburne engine turned about 400 r.p.m. faster than the Douglas.

THE A.N.E.C. monoplanes impressed everyone by their

obvious aerodynamic efficiency. No. 17 was very fast, and was, of course, extremely well handled by James. She seems a little quick fore and aft, however, and it would appear that an extra foot or two in the length of the fuselage might result in a considerable improvement.

THE Avro monoplane suffered from slight engine trouble, and was not able to do more than a few laps of the course. A smaller pair of wings had been fitted than those used by Hinkler at Lympne, and had the engine been running well the machine would probably have proved quite fast. The long fuselage and high aspect ratio wings of the Avros make them less inclined to "flick" than some of the machines with short wings and bodies.

DESIGNERS are now getting busy on two-seaters for next year's competitions, but the fact that no announcement has yet been made as regards the engine capacity that is to be allowed is effectively putting a stop to anything but tentative design. It is to be hoped that the Air Ministry will make its decision at once, since not only the aircraft designers but also, and more important because of the longer time required, the engine designers are unable to proceed until a decision has been announced. At the same time, in fairness to the Air Ministry, it should be pointed out that it is no easy matter to determine what capacity should be allowed for a two-seater.

WE have discussed the matter with several aircraft designers, and have to admit that there seems to be a considerable lack of agreement on the subject. One designer definitely stated that he was convinced that 1,100 c.c. was ample for a two-seater. His argument ran somewhat as follows: "I suggest that 1,100 c.c. is ample for a two-seater, and will serve to make the affair far more sporting than with engines of 1,500 c.c. No doubt the machines developed for army or civilian use, after the competition, would be made a little bigger so as to allow fairly good results to be obtained even with the engine a bit out of tune. I think you will agree that the lower the power the more difficult and instructive it will be to make a machine that will fly satisfactorily, and it is certain that the aerodynamic qualities and structure questions will have to be studied to a greater extent with a small engine than with a larger one, and would probably result in more ultimate improvement in all-round efficiency and controllability."

THAT is one view. Another designer with whom we discussed the matter inclined to think 1,500 c.c. was preferable, providing a greater excess of power for getting out of a reasonably small field, and enabling the engine normally to be run throttled back considerably. Yet another was in favour of a 2,000 c.c. engine. With the latter we are in entire disagreement. If progress is to be made, it is no manner of good making the same mistake we made before the War of getting the required performance simply by fitting a more powerful engine. Moreover, as the engine gets bigger so the machine will have to get bigger in order to keep down the landing speed, and the housing and transport problems become more difficult. Our aim should, we think, be to keep the size of these light aeroplanes down to the minimum that will give a low landing speed. With a 1,500 c.c. limit we are not inclined to quarrel violently, although personally we believe, with the first designer to whom we have referred, that for the competitions at any rate the 1,100 c.c. engine will be sufficient. Afterwards it will be a simple matter, should it prove necessary, to fit a slightly larger engine for general use. Personally we do not think that a larger engine than 1,100 c.c. will be required, and, after all, the aerodynamic efficiency and structural improvement are, or should be, the main objects sought if we are to make *real* progress by means of the light aeroplane.

THE idea of fitting an engine slightly larger than strictly required is very tempting from several points of view. To begin with, it gives a very useful margin of power for getting out of restricted spaces. It also enables a pilot to run his engine normally well throttled back, and should thus result in longer engine life and greater reliability. We say *should*, because we rather doubt whether it will do so. Pilots are very human, after all, and it requires considerable will power to sit behind an engine throttled down to give a comfortable cruising speed of say 50 m.p.h. when, by just opening his throttle, he could be doing 65 or 70 m.p.h. On the road it is

different. There considerations other than regard for his car and engine usually determine the speed. In the air, however, no additional element of danger is introduced by going faster. In fact, rather the reverse, and it is expecting a good deal from a pilot—even an owner-pilot—to study his engine to the extent of never running it all out except under special circumstances.

TAKING it all round, we believe that 1,100 c.c. can safely be accepted as the limit permitted for next year's competitions, and we are quite sure that even with engines of this size machines can be, and will be, produced which will have both a good performance and a sufficient reserve of power to take them well out of the "tangent" class.

TURNING now to the competition itself, the rules should soon be decided upon, and here the task is, perhaps, even more difficult than in the matter of choosing a suitable engine capacity limit. This year's rules were at fault mainly in placing too great importance on the fuel economy question. If the engine capacity is limited, there would seem to be little need to award large prizes for mileage per gallon, although economy should be taken into account as a subsidiary consideration. Reliability would appear to be, perhaps, the most important desideratum, and stability and controllability are certainly equally important. Unfortunately, the latter are difficult to compare, and the task of judging between various machines in this respect would neither be a pleasant nor an easy one. Speed is important if coupled with a certain minimum landing speed, and it would seem that probably the best plan might be to devise some formula in which speed, fuel consumed, and weight carried were given due consideration. For the French Grand Prix for commercial four-engined aeroplanes, held some weeks ago, the following formula

was used: $\frac{PV}{U}$, in which P = the useful load carried, V the speed, and U the weight of fuel consumed over the course over which the competition was held. In this case, as the competitions are to be for two-seaters only, presumably the weight of the passenger will be arbitrarily fixed beforehand, and be the same for all machines, and therefore scarcely need be included in the formula.

On the whole, it should not be difficult to devise a formula suiting the conditions, while forced landings *en route* could be penalised by the loss of points according to the delay. Similarly, replacements of certain parts could be penalised by loss of points. It would be advisable to include in the formula a figure for the number of circuits of the course so as to encourage as much flying as possible. A take-off and landing test before the start of the actual competition might be included with advantage, points being awarded for shortness of run and angle of take-off for the start and for distance of

pull-up on landing. Again, it might be possible to incorporate these figures or points in the form of a formula, penalising by loss of points any replacements necessary as the result of a minor crash.

At the present moment the French Aero Club is drafting the rules for a circuit of France for light aeroplanes during the coming year. At present it is not known in what manner it is proposed to arrange the rules, but such a test as a flight around France must be a severe one, although it has the



A NOVEL AVRO AT LYMPNE: Colonel Moore-Brabazon "piloting" the Avro two-wheeled cycle-car over a very greasy patch.

advantage of giving nearly the whole nation an opportunity of seeing the machines, which is important from the popular point of view. Doubtless a circuit of Britain could be arranged along similar lines, but we doubt if it would be wise to choose this for the two-seater competitions of next year. It would seem to be rather a matter for the following-up of the actual competitions, and to be held later in the year, when the Air Ministry competitions have shown what the machines can do. One thing is certain, the competitions must be held at an early date so as to enable the machines to be demonstrated later on at flying meetings in different parts of the country. We would suggest some time in June as suitable.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS.

INTERNATIONAL AIR RACES.

MR. GEORGE JOHNS, representing the National Aeronautic Association of U.S.A., attended at the Royal Aero Club on Monday, the 29th October, and met the Members of the Club Racing Committee and Representatives of the Society of British Aircraft Constructors and the Air Ministry.

Lieut.-Col. F. K. McClean, A.F.C., occupied the Chair.

Racing Committee.—The Lord Edward Grosvenor, Lieut.-Col. M. O. Darby, Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., Lieut.-Col. John D. Dunville, C.B.E., Lieut.-Col. Alec Ogilvie, C.B.E., Mr. W. O. Manning.

Society of British Aircraft Constructors.—Capt. P. D. Acland (Vickers, Ltd.), Commander James Bird (Supermarine Aviation Works, Ltd.), Mr. H. Burroughes (Gloucestershire Aircraft Co., Ltd.), Mr. F. Handley Page (Handley Page, Ltd.), Mr. F. G. T. Dawson (Fairey Aviation Co., Ltd.), Mr. John Lord (Messrs. A. V. Roe and Co., Ltd.), Mr. R. R. Rhodes (Blackburn Aeroplane and Motor Co., Ltd.), Mr. T. O. M. Sopwith (H. G. Hawker Engineering Co.), Mr. H. T. Vane (Messrs. D. Napier and Son, Ltd.).

Air Ministry.—Air Commodore D. L. G. Pitcher, C.M.G., C.B.E., D.S.O., Major O. G. G. Villiers, D.S.O.

In attendance.—Mr. C. V. Allen (Secretary, Society of British Aircraft Constructors), Lieut.-Commander H. E. Perrin (Secretary, Royal Aero Club).

Mr. George Johns, on behalf of the National Aeronautic Association of U.S.A., tendered a cordial invitation to British Competitors to visit America next year and take part in the International Races held there. He was not in a position to make any definite promise as regards expenses, but he felt sure that the organisers would make an offer to the British Competitors on the same lines as was done for this year's Pulitzer Race.

It was pointed out to Mr. Johns that the dominating factor would be the date, and it was suggested that the National Aeronautic Association of U.S.A. should arrange for the three International Races, viz., Schneider Cup, Pulitzer Trophy and the Curtis Marine Competition, to take place late in the Autumn over a period of say one week, and that the conditions of the Curtis Marine Competition should be such as to permit of the Schneider machines taking part.

Offices: THE ROYAL AERO CLUB,

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

Premiers at Croydon

THE Secretary of State for Air has invited the Prime Ministers and other representatives of the Dominions and India who are now in London to be present at a flying display of service and civil machines at Croydon Aerodrome

on Saturday, November 10. The programme will include an inspection of the machines, a fly-past of new types, squadron flying drill by single-engined bombers, aerial combat between a Bolton and Paul "Bourges" and two Nieuport "Night-hawks," and inspection of traffic and wireless arrangements.

NEW AMERICAN NIGHT FLYING MAIL 'PLANES

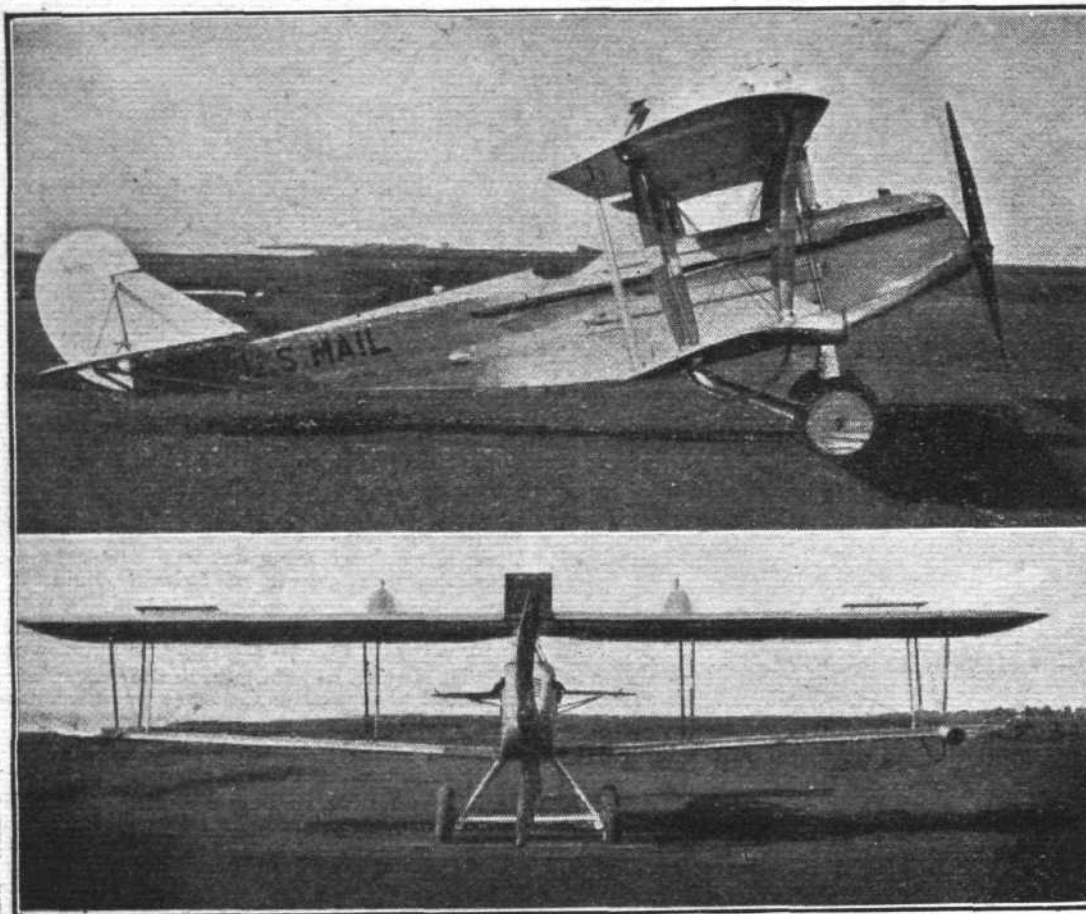
A LITTLE while back the U.S. Air Mail Service issued tenders for a certain number of aeroplanes designed specially to meet the various requirements for night mail service. As a result three types of machines have already materialised, one from each of three well-known American aircraft constructors—the Aeromarine Plane and Motor Co., of Keyport, N.J., the Curtiss Aeroplane and Motor Co., of Garden City, N.Y., and the Glenn L. Martin Co., of Cleveland. We give below brief descriptions of these three machines, together with illustrations. It may be mentioned that these machines are intended for use on the "night section" of the New York-San Francisco air mail service, that is, the section between Chicago and Cheyenne.

The Aeromarine Night Mail 'Plane.—The machine designed and built by the Aeromarine Co. is a two-bay tractor biplane

increase the flow of air through the lower part of the core, and to reduce interference to air flow of plane at this part. The radiator is provided with shutters.

It will be noticed that the top plane is of larger span and chord than the lower one, the two planes being staggered so that the rear struts are perpendicular to the chord. This arrangement of wings is claimed to be particularly advantageous when good load-carrying capacity and climb are required. It also allows better field of view for the pilot. The lower wings only are given a dihedral angle.

Aeromarine No. 2A wing curve is used on both planes. This curve is an improvement of No. 2, originally designed for use on Air Mail 'plane type WM (converted DH4) which was described in FLIGHT for November 16, 1922. This curve not only gives a low landing speed (45 m.p.h.), but enables



Side and front views of the Aeromarine Night Mail 'Plane, 400 h.p. Liberty engine.

with metal fuselage, and fitted with a high compression 400 h.p. Liberty engine.

The fuselage is kept very narrow in order to decrease resistance and improve the pilot's vision, and tapers considerably towards the rear. It is of plate girder (semi-monocoque) construction, built up entirely of duralumin (17/S/alloy) sheet. The covering is $\frac{1}{32}$ -in. thick, the bulkheads vary from $\frac{1}{8}$ -in. to $\frac{1}{16}$ -in., and the longerons, of angle section, are $\frac{1}{16}$ -in. thick. Heavy reinforcements of $\frac{1}{16}$ -in. duralumin are introduced at points where openings occur, such as the pilot's cockpit, mail compartment, etc. The engine is completely and very neatly cowled in, ample ventilation being provided.

The engine mounting is made up of steel tubing and wooden bearers. It is an easy matter to remove the cowl, which is in four parts, each secured by long hinge pins, and when removed, the engine is left exposed on all sides, allowing all repairs to be made with great facility. Ample clearance is left between the engine and the fuselage proper, thus providing easy access to distributor heads, generator, water pump, petrol strainers and engine controls.

The oil tank is located under the engine, and acts at the same time as oil radiator—the cooling being regulated by opening or shutting doors in the lower cowl. The engine radiator is mounted on the top plane at the leading edge, and is supported by two brackets. It is easily removed by undoing three nuts and two water connections. Sufficient clearance is left between the radiator and the plane in order to

loads to be carried far in excess of the ordinary if required in emergency. Furthermore, being comparatively thick, deep and strong wing spars are used. These are of heavy I-section spruce with built-up spruce ribs. A feature of the wing construction is that the centre lines of front and rear spars are in line with the centre lines of the struts. This enables very simple and effective strut fittings being used, and eliminates offset bending movements in any direction. The wing bracing is of the two-bay type, the top planes being attached to a central cabane over the fuselage. The inter-plane struts are of Navy No. 1 section, which together with streamline bracing wires give very small parasite resistance.

Large ailerons are fitted to both top and bottom planes, and the upper ailerons are balanced by means of small balancing panels.

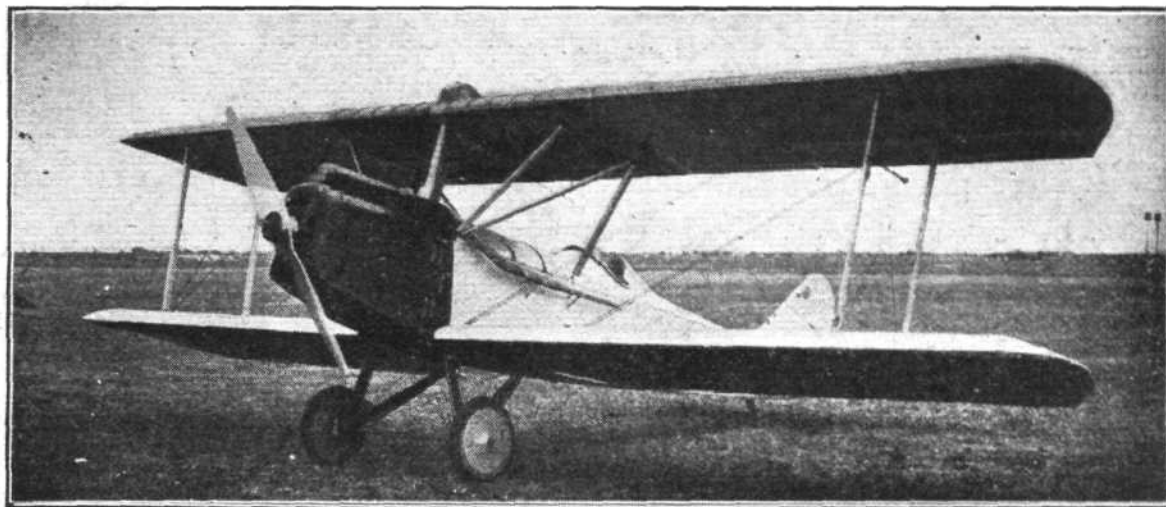
Two petrol tanks, of 50 gal. capacity each are mounted on the top plane, giving a gravity feed with 3 to 4 ft. head. These tanks are of welded aluminium alloy sheet barrel construction, and are streamlined by metal and fabric fairing.

The tail surfaces are also constructed of 17 S. alloy, and can be removed from the fuselage as a unit. The horizontal stabiliser is adjustable from the pilot's cockpit.

The landing gear is of the conventional V type, with a comparatively wide track—7 ft. 6 ins.—so that the wheels and shock absorber units are entirely out of the slipstream.

The principal characteristics of this machine are:—Span, 50 ft. (top), 45 ft. (bottom); chord, 7 ft. (top), 5 ft

The Curtiss Night Mail 'Plane, 163 h.p. Curtiss C-6 engine.



(bottom); o.a. length, 32 ft. 11 ins.; height, 12 ft. 9 ins.; area, 540 sq. ft.; mail space, 45 cubic ft.; weight empty, 2,875 lbs.; weight laden, 4,450 lbs.; loading/sq. ft., 8.2 lbs.; loading/h.p., 11.1 lbs.; speed range, 45-116 m.p.h.; climb with 600 lbs. mail, 6,500 ft. in 10 mins.; ceiling, 17,000 ft.

The Curtiss Night Mail 'Plane.—This machine is a tractor biplane of the "one-and-a-half-strutter" type, employing the U.S.A. 27 wing curve and fitted with a Curtiss 160 h.p. C-6 engine. A feature of the wing arrangement is the construction of the upper centre section. This is metal, and contains the fuel tank, and on which are mounted the Curtiss wing type radiators. The advantages claimed for this arrangement are low head resistance, due to the use of wing type radiators, reliability of fuel system on account of the use of gravity feed entirely with consequent elimination of fuel pump trouble, and the desirable feature of having the petrol outside the fuselage. This centre section is carried above the fuselage by a pair of N struts.

Top and bottom planes are of equal span and chord, and have a slight sweep back and a dihedral angle, and ailerons are fitted to the top planes only.

The fuselage is of the usual rectangular section girder construction of wood. The pilot is located aft of the main planes, and between his cockpit and the engine is a roomy compartment, with easily opened hinged cover, for mails. Loading and unloading the latter is greatly facilitated by covering the top surface of each lower wing, alongside the fuselage, with strong veneer, and thus providing a safe walkway.

Another important feature of the Curtiss machine is the employment of a Reed duralumin airscrew of high efficiency, manufactured by the Curtiss Co. It is claimed for this airscrew that it cannot be injured in flying through rain or hail.

Searchlights are mounted on the tips of the lower plane, for use in night landing, the wiring for these lights being carried in aluminium conduits within the wings.

One of the most noteworthy features of this machine, which

makes it particularly adaptable to mail service, is its great economy of operation. Although the specifications under which the machine was designed only call for a mail load of 300 lbs., the efficiency of the machine has proved such that 500 lbs. of mail has satisfactorily been carried in flying trials. Credit for this is said to be due largely to the use of the C-6 engine, giving its 163 h.p. with an economy of fuel consumption which provides a flight range of 3½ hrs. or 360 miles full throttle, or 5 hrs.—425 miles, at cruising speed.

Characteristics of Curtiss Night Mail 'Plane:—Span, 33 ft.; chord, 6 ft.; gap, 6 ft.; o.a. length, 26 ft. 11 ins.; height, 10 ft. 3 ins.; area, 364.8 sq. ft.; sweep-back, 5°; dihedral angle, 1½°; incidence, 2°; weight empty, 1,704 lbs.; weight laden, 2,524 lbs.; loading/sq. ft., 6.9 lbs.; loading/h.p., 15.5 lbs.; speed range, 44-106 m.p.h.; climb, 5,600 ft. in 10 mins. (800 ft./min.); ceiling, 14,000 ft.

The Glenn L. Martin Night Mail 'Plane.—The Glenn L. Martin machine is also a tractor biplane, of the single bay type, with a Wright E4 200 h.p. engine. It is of sturdy construction, having a fuselage of rectangular section, veneer covered. The pilot's cockpit, which is comfortable and roomy, is located well back of the wings, about midway of the fuselage. In front of this cockpit is the mail compartment in the upper part of the fuselage, having 31 cubic ft. of space, sufficient for 600 lbs. of mail. Below the mail compartment are two petrol tanks, with a combined capacity of 64 gals.

The engine is mounted on ash bearers supported by a tubular steel structure attached to the longerons and front bulkhead of the fuselage. The radiator is directly below the engine, and completely cowled in with the exception of the front cooling surface. The radiator shutter is a novel trapdoor arrangement with a positive rack-and-pinion control in the cockpit. A 5-gal. oil tank is mounted on the front bulkhead at the rear and below the engine. Between this tank and the engine is a special oil radiator. An aluminium fire wall separates the engine from the mail compartment and fuel tanks.

The cowling is arranged to allow quick accessibility to all



The Glenn L. Martin Night Mail 'Plane, 200 h.p. Wright E4 engine.

parts of the engine, large hinged doors held in place by tension fasteners being provided on each side.

A large portion of the unusual efficiency of this machine is due to the wing section used. This is a recent development of the Martin Co., a thick section known as Martin No. 15. The main spars are of the box type, built up of spuce, with plywood sides and the typical Martin type built-up spruce ribs.

There are two lower wing sections, each attached to the bottom of the fuselage, and the upper wing is in three sections, there being a narrow cabane section the width of the fuselage to which the outer sections are attached. The centre section is supported over the fuselage by two inverted U-struts. There is only one interplane strut each side of the I type. These are built up N's covered with plywood. The interplane bracing is composed of four streamline rods on each side.

Ailerons are fitted to both upper and lower planes, the upper ailerons being balanced by means of auxiliary vanes or

panels. The tail surfaces are of the same construction as the wings, the stabiliser being adjustable from the pilot's cockpit.

The landing gear is of robust construction, and with a wide track in order to meet the special requirements of night landings, etc. It is of steel tubing with large aluminium alloy castings and riveted and welded steel fittings. The axle is of the centre-hinged type.

Several improvements have been embodied in the control system. No pulleys are employed, every cable running in a straight line, and the controlled parts are operated by levers and bell cranks, thus giving a positive action with little or no wear on the cables. The tail skid is of the steerable type.

Characteristics:—Span, 42 ft.; chord, 5 ft. 4 ins.; gap, 6 ft.; o.a. length, 28 ft.; height, 12 ft. 1 in.; area, 430 sq. ft.; weight empty, 2,020 lbs.; speed range, 38-105 m.p.h.; climb, 6,000 ft. in 11 mins.; ceiling, 17,000 ft.

LONDON TERMINAL AERODROME

Monday evening, October 29, 1923

THE past week has been one of the worst, with regard to flying weather, that has been experienced this year. Practically throughout the week gales have reached over the Channel, and ships have been held up on several occasions, but in spite of this the air services have carried on with very little dislocation, and several notable flights have been made in high winds. During the worst gale on Thursday two Daimler D.H.34's flying from Hamburg to London in the teeth of the gale, had to alight twice for fresh supplies of petrol, and arrived at Croydon only a few minutes before dusk. On the same day two of the Instone machines made a trip to Cologne.

Owing to the soggy nature of the Aerodrome at Hamburg one of the Daimler machines, while taxiing towards the hangars after alighting there, sunk into the mud, damaging a prop. Another machine was immediately despatched with a spare prop., and both machines returned to Croydon against the gale on Thursday.

Resumption of the London-Manchester Service

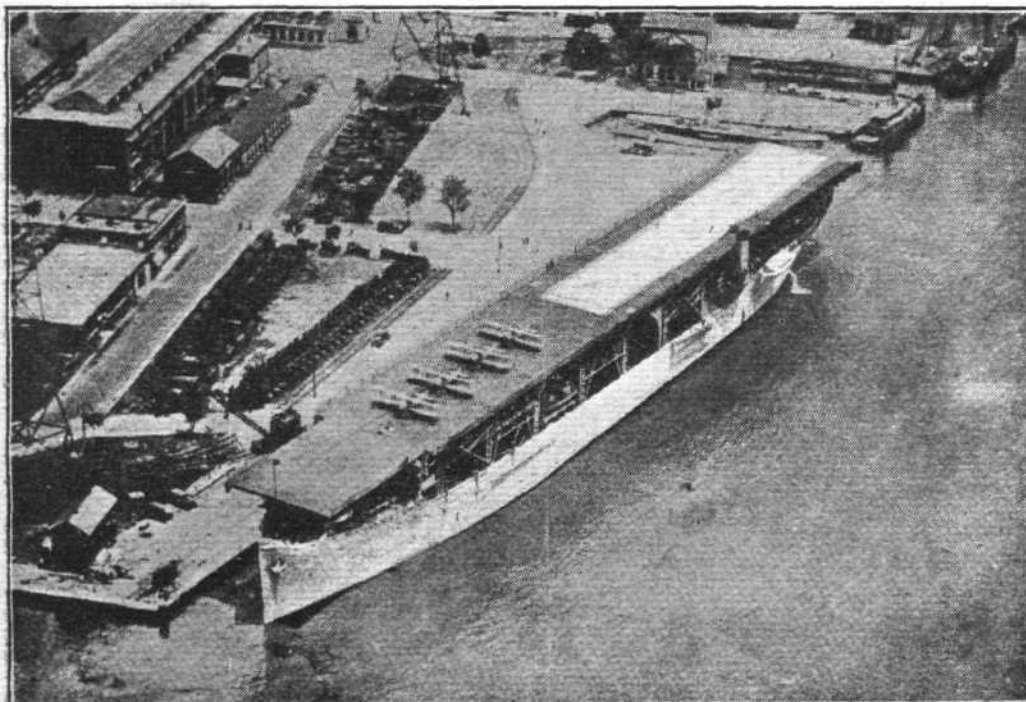
The Daimler service to Manchester has re-opened today, and a machine will in future leave the aerodrome at 9.10 a.m. being due in Manchester at 11.10 a.m., the return to commence at noon, the machine being scheduled to arrive in London at

2 p.m. One of the original D.H.34's, which was sold by the Air Ministry to the Aircraft Disposal Company, has been purchased by the Daimler Airway for this service.

Preparations for the night service to Paris have advanced a stage further this week, Mr. Biddlecombe, of the Air Ministry Navigation Department, having been at the aerodrome on several evenings inspecting and testing the entire lighting arrangements for night-flying here.

The Instone Air Line continue to get greater and greater amounts of goods for their Cologne service, and require all the machines they can put on the service to cope with the traffic. So great has this goods traffic become that the Lep Transport Company have opened an office on the aerodrome to deal with it, and their motor-lorries are now daily visitors to the aerodrome, bringing and fetching away goods that have been air-borne.

A demonstration of both military and civil aviation is to be given at the aerodrome on November 10, when the Dominion Prime Ministers will attend to see the progress made by Britain in aviation. I understand that in addition to flights by civil machines that there will be formation flying by R.A.F. bombing aeroplanes, and aerial combats by fighters and the twin-engined Bourges. In fact, it will be a reproduction, on a small scale, of the pageant at Hendon.



U. S. Aircraft carrier "Langley": A view of the vessel from above, showing the platform, entirely free from obstructions, from which the machines start. Note the four 'planes standing on the deck.

THE "SCHOETTLER I" BIPLANE

A Successful Chinese-Built Aeroplane

WE have just received the accompanying illustrations and a few brief particulars of what is claimed to be the first successful aeroplane built in China. Whilst much has been written about aviation and its progress in China, so far little or nothing has been heard about the construction of aeroplanes in this ancient land of the East, and it is only just recently that reports appeared in local newspapers telling of the tests at the Lunghwa Aerodrome of the machine under review

modern machinery with which foreign aircraft works are equipped. Every part had to be made by hand from the raw material, without trained workmen, and in an open workshop. The latter, in fact, was little better than a matshed, offering but poor protection from the by no means favourable climatic conditions peculiar to China.

Considerable assistance in the construction of this machine, however, was obtained from Messrs. F. A. Welti and Son, of

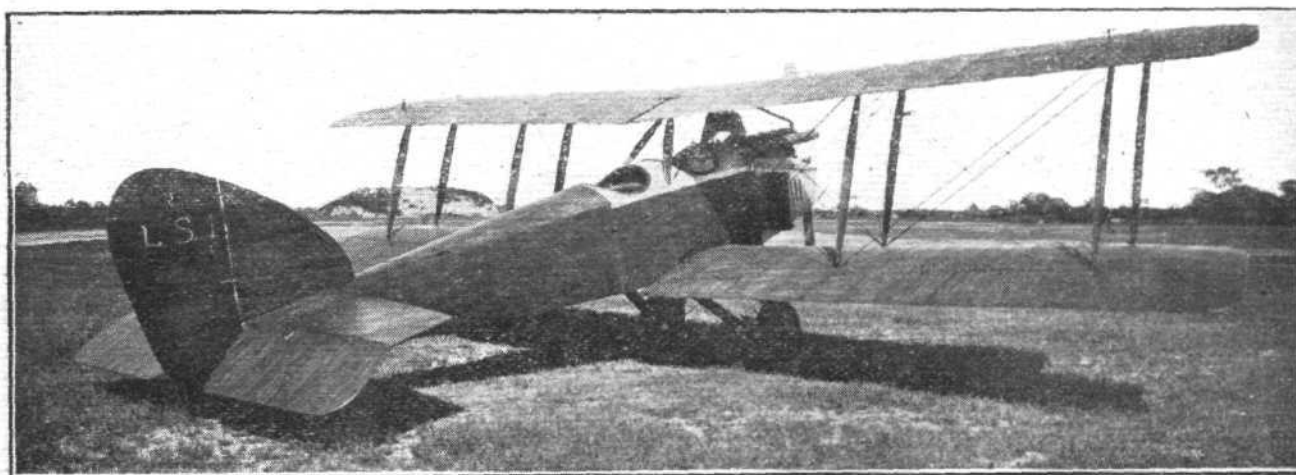


A CHINESE-BUILT AEROPLANE: A three-quarter front view of the "Schoettler I" biplane, fitted with a 160 h.p. Mercedes engine. This machine was built and flown at the Lunghwa Aerodrome, China, during the summer of this year.

As a matter of fact, several attempts have been made at building aeroplanes in China, but without, it would seem, satisfactory results. Perhaps the principal reasons for this state of affairs have been lack of suitable raw materials, want of skilled workmen, and the restrictions placed upon the import of such materials to be used for the manufacture of aeroplanes. In consideration of the above-mentioned points aeroplane construction in China was considered an impossi-

London, who supplied many of the important materials—such as instruments from S. Smith and Sons; dope from Titanine Ltd.; and wheels from Palmer Tyre, Ltd. The engine, instruments and wheels were the only "ready-made" items imported from Europe, everything else having been made in China.

From this it will be gathered that aeroplane building in China, although no longer an impossibility, would be—owing



A three-quarter rear view of the "Schoettler I" biplane.

bility amongst foreign experts, but if some of them could see the work done at the Lunghwa Aerodrome during the past sixteen months they would give a different opinion.

The first machine—of a series to be completed soon—to be produced at this aerodrome is a two-seater tractor biplane, fitted with a 160 h.p. Mercedes water-cooled engine, has been completed. This machine has been designed and built by F. L. Schoettler, a German engineer, and it is known as the "Schoettler I."

The work of construction has been done without any of the

to the small number of skilled workmen available to assist the foreign engineer to bring out the finished product—a far from simple proposition, calling for a plentiful supply of brains and energy in order to carry on under the present conditions.

The work at Lunghwa will be the first step and the trial for greater schemes. Aviation, no doubt, will take one of the most important places later on amongst the means of communications in China, because it can be inaugurated with less money than that necessary for the building of long-distance roads and railways, and there is a larger field for aviation in

this great country (China), except America, than in any other country in the world. On the other hand, commercial aviation is an impossibility in China as long as there are no engineers and trained workmen, to be able to keep up the routes, to repair every damage, and, consequently, to rebuild or even to construct new machines. Perhaps the future will prove that the trial at the Lunghwa Aerodrome has been the foundation of aeroplane building in China, placing this country amongst the nations producing aircraft.

"Schoettler I," as may be seen from the accompanying illustrations, is a very conventional two-seater tractor fuselage biplane, resembling closely in general appearance the German "Aviatik" or "Albatros" type of machine. Constructionally also, we believe, this 'bus departs very little, if at all, from usual practice. The fuselage is of rectangular section girder construction, tapering somewhat finely to a vertical knife-edge at the rear. The covering is fabric, except

landing gear is fitted, the struts of which are, we believe, steel tubes with wood fairings.

The following is a report on a test flight made by Mr. W. E. Holland (late Major, R.A.F.) on July 19, 1923:—

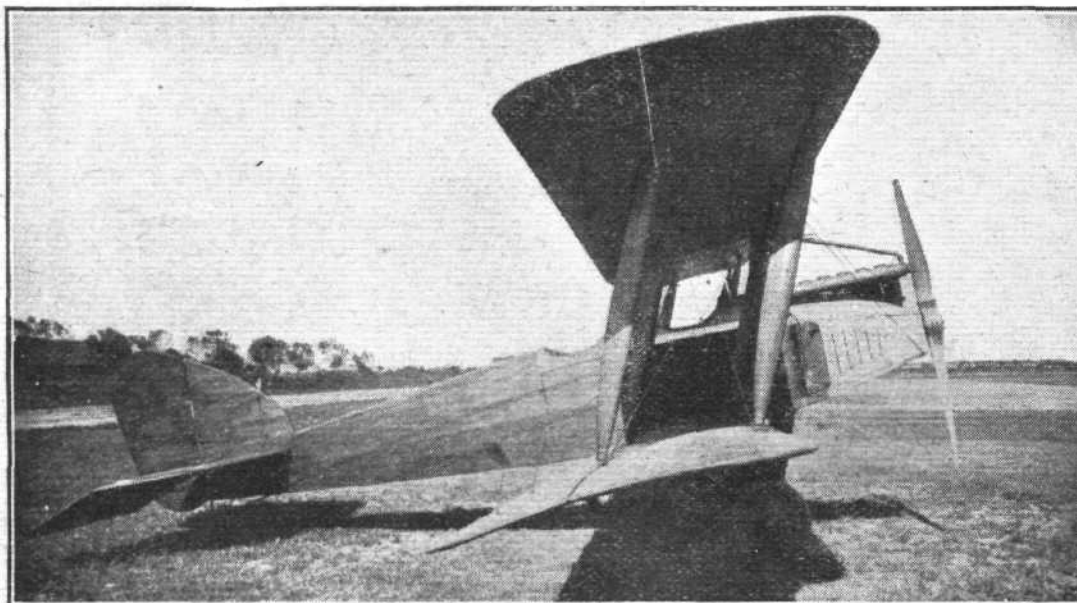
Controls.—Lateral controls slightly stiff; this would improve by use and suggest balancing the ailerons. **Rudder.**—Very good. **Elevator.**—Fully loaded would be very good indeed.

Visibility.—The position of the pilot makes visibility exceptionally good; it is impossible to suggest improvements.

The machine flies well, is very well balanced in the air, and answers controls cleanly.

Speed.—Air speed obtained, full throttle at 1,000 ft., 126 miles per hour, but this speed could not be maintained; best cruising speed about 98 miles per hour.

Climb.—The machine climbed about 1,000 ft. a minute near the ground; was unable to test climb at a height.



Side view of the
 "Schoettler I"
 Chinese-built
 biplane.

for the engine portion, which is metal, and the deck over the cockpits.

The radiators for the engine cooling water, of which there are two, are of the honeycomb type, mounted outside the fuselage, one each side of the engine compartment. They are provided with shutters for the purpose of regulating the temperature.

Both top and bottom planes are of equal span and chord, and both are set at a dihedral angle of 2°. The top plane, which is staggered forward about 2 ft., is in two sections, being attached at the centre to two pairs of inverted V-struts on the top of the fuselage. The bottom planes, also in two sections, are attached direct to the sides of the fuselage. There are two pairs of interplane struts a side, and lift wires are doubled. Ailerons are fitted to top and bottom planes, and are interconnected. The tail surfaces, which are of ample proportions, do not call for any special comment. A conventional V-type

Cooling.—The cooling system seems to work very satisfactorily, but would suggest a larger blow off.

General Remarks.—The machine gives great promise, and if flown from a larger aerodrome could be handled by the average pilot quite successfully.

I was very pleased with the machine's general behaviour, and look forward to seeing the result of future models. The weight-carrying capacity has been under-estimated. Position of observer is such that he can obtain a vision of practically 360° arc.

The principal characteristics of "Schoettler I" are: Span, 39 ft. 6 ins.; chord, 5 ft. 6 ins.; o.a. length, 27 ft. 4½ ins.; height, 10 ft. 3 ins.; gap, 5 ft. 6 ins.; stagger, 1 ft. 11½ ins.; dihedral angle, 2°; wing area, 401½ sq. ft.; weight empty, 1,634 lbs.; weight laden, 2,558 lbs.; loading per h.p., 15.9 lbs.; loading per sq. ft., 6.3 lbs.; speed range, 45-122 m.p.h.; duration, 4½ hours.

R.A.F. Openings for Nurses

THE Air Ministry announces that a number of temporary staff nurses are required immediately for Princess Mary's Royal Air Force Nursing Service. Candidates must be between 24 and 40 years of age, and have had three years' training in a recognised training school. In making the appointments, preference will be given to those holding additional certificates.

The initial period of service will be for one year, with an option to extend for further annual periods. Staff nurses under the age of 35 on appointment will be considered as vacancies occur for transfer to the permanent service.

The pay on appointment is £60 per annum, rising by annual increments of £2 10s. to £65. Allowances for board and washing will be made in accordance with rules laid down for members of the permanent nursing service.

A uniform allowance of £20 will be paid on entry, an upkeep grant of £5 for the second year's service and £10 in the third and subsequent years. A gratuity of £7 10s. will be paid on cessation of employment for each completed year of temporary service.

Staff nurses who may be transferred to the permanent service, and who have had previous service in either the

Navy or Army Nursing Service, may count that service towards retired pay in lieu of the gratuity mentioned above, provided the break in service does not exceed five years.

Candidates should apply in writing to the Matron-in-Charge, Princess Mary's Royal Air Force Nursing Service, Air Ministry, Kingsway, London, W.C. 2, stating age, certificates held and experience.

Bristols Make Good in Australia

SPLendid work is being accomplished by Western Australian Airways, Ltd. They have now totalled 200,000 miles flying on the North-West Aerial Mail Service. It is of interest to note that they are—or have, by now—reconditioning one of their Bristol tourers, which has completed 600 hours' flying without overhaul. The machine was recently inspected by a Departmental Inspector, who was satisfied as to its being perfectly airworthy, and only recommended a few minor replacements. The company state that they are very pleased with the remarkable way in which the fleet of six Bristol tourers are standing up to their work, and that these machines have given the most complete satisfaction. It is gratifying to learn that the company has been officially informed that their contracts for the air mail service are to be continued.

THE ROYAL AIR FORCE

London Gazette, October 23, 1923

General Duties Branch

The following are granted permanent commissions in ranks stated (Oct. 24):—*Flight Lieut.*—T. O. Clogstoun (Lieut., R. Warwicks Regt.). *Flying Officer*—C. E. Horrex, W. E. G. Mann, D.F.C., H. N. C. Robinson, M.C., D.F.C., S. H. Ware.

The following are granted short service commissions in rank stated, with effect from, and with seny. of, dates indicated:—*Flying Officers*—R. H. Stocken; Oct. 15. G. Todd; Oct. 9. *Pilot Officer on Probation*—A. E. Paish; Oct. 12. *Pilot Officer* L. G. A. Kirchner is promoted to the rank of *Flying Officer*; Oct. 1.

The following are transferred to Reserve:—

Class A.—Flying Officers—R. Hood; Oct. 24. L. L. Leleu; Oct. 19. G. Veevers-Carter; Oct. 19.

Class B.—Flying Officers—M. H. Armstrong; Oct. 24. F. C. North; Oct. 24. W. E. Townsend; Oct. 24. S. G. Wybrow; Oct. 24.

Class C.—Observer Officer—A. J. Insall; Oct. 24.

Pilot Officer J. S. Charlton resigns his permanent commission; Oct. 24.

Stores Branch

The following are granted permanent commissions in ranks stated for accountant duties; Oct. 24.—*Flight Lieut.*—C. W. Rogers. *Flying Officers*—W. W. Deane, A. C. Lobley, W. A. Wadley.

Medical Branch

The following are granted short service commissions as *Flying Officers*, with effect from, and with seny. of, Oct. 8:—T. V. O'Brien, M.B., F. W. G. Smith, M.B., B.A.

The following are granted temp. commissions in ranks stated, with effect from, and with seny. of, dates indicated:—*Flight Lieut.* (Hon. Squadron Leader)—A. G. Lovett-Campbell, M.B.; Sept. 12. *Flying Officer* (Hon. *Flight Lieut.*)—G. R. Hall, M.D.; Oct. 8.

Flight Lieut. G. W. Allen (Capt., Army Dental Corps), relinquishes his temp. commission on resigning his commission in the Army; Oct. 20.

Reserve of Air Force Officers

The following are granted commns. on probation in General Duties Branch in ranks stated (Oct. 23):—

Class A.—Flying Officers—H. D. Humphreys, J. P. Morkam, D.F.C. *Pilot Officers*—C. F. Day Evans, W. H. Herd. *Flying Offr.* R. H. Stocken resigns his commn.; Oct. 15. The commn. of *Pilot Offr.* on probn. John Marsh is terminated on cessation of duty; Sept. 28.

Class C.—Flying Offr. R. T. Daubency is transfd. from Class B to Class C; Sept. 28.

London Gazette, October 26, 1923

General Duties Branch

Capt. T. K. Burton, the Camerons, is granted a temp. commn. as *Flying Offr.* (Hon. *Flight Lt.*) on secd. for four years' duty with R.A.F.; Oct. 23.

The follg. *Pilot Offrs.* are promoted to rank of *Flying Offr.* *Gazettes* in brackets are cancelled:—J. B. H. Rogers [April 6]; Feb. 8. F. L. Hudson [April 6]. H. P. L. Gardner [April 6]. B. J. J. Nimmo [May 1]. R. H. Windsor [June 5]. H. A. Bayne [June 5]. N. M. Firench [June 5]; March 1. C. E. B. Winch [June 5]; March 7. J. G. Shackleton [June 26]; April 28. C. McL. Read [June 5]. M. V. Ward [June 5]. C. B. Horsfield [July 10]. J. J. Comerford [July 17]. S. S. Kirsten [Aug. 28]; May 1. J. F. Bythell [June 5]. F. Beesley [July 3]; May 2. H. W. Beck [June 5]; May 8. A. R. M. Brain [Aug. 7]; May 15. E. C. Barlow [June 26]. C. A. Goatcher [June 26]. H. K. Waterfield [Aug. 7]; May 28.

Princess Mary's Royal Air Force Nursing Service.

Miss Ethel W. Buckley is confirmed in her appt. as a Staff Nurse; Dec. 16, 1922 (substituted for *Gazette*, Oct. 9).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodore L. E. O. Charlton, C.B., C.M.G., D.S.O., to R.A.F. Depot; Sept. 24, pending disposal on transfer to Home Estab.

Group Captain P. F. M. Fellowes, D.S.O., to H.Q., Egypt; Oct. 2, for Air Staff Duties.

Squadron Leaders: F. H. M. Maynard, A.F.C., to No. 4 Flying Training Sch., Egypt. 14.10.23. W. H. Dolphin, to No. 14 Sqn., Palestine. 21.9.23.

Flight Lieutenants: W. W. Hart, M.B.E., to No. 1 Wing H.Q., India. 15.10.23. J. G. Walser, M.C., to No. 60 Sqn., India. 2.10.23.

Flying Officers: F. H. Astle, to No. 39 Sqn., Spithead; Nov. 12. W. H. Dunton, to R.A.F. Base, Lenchars; Oct. 26. A. J. E. Broomfield, D.F.C., to No. 27 Sqn., India. 15.10.23. E. H. Richardson, to No. 5 Sqn., India. 15.10.23. W. R. Day, to No. 20 Sqn., India. 15.10.23. F. W. Wrench and A. L. Harris, both to No. 31 Sqn., India. 15.10.23. L. W. Aiken, to No. 60 Sqn., India. 15.10.23. S. F. Cole, to R.A.F. Base, Calshot. 22.10.23. R. H. Stocken, to No. 2 Flying Training Sch., Duxford. 1.11.23. A. C. B. Harrison, M.C., to R.A.F. Depot. 28.9.23, pending disposal

on transfer to Home Estab. W. H. Dunton, to Sch. of Photography, S. Farnborough. 5.11.23. P. Chauncy, to R.A.F. Depot. 28.9.23, pending transfer to the Reserve on transfer to Home Estab. M. H. Fitzgerald, (Hon. *Flt. Lieut.*) L. F. Marson, M.C., C. F. Ellicott, and D. Stansby, all to No. 4 Sqn., S. Farnborough. 1.11.23. S. J. Stocks, to No. 7 Sqn., Birmham Newton. 29.10.23.

Pilot Officers: L. V. H. G. Clark, to No. 216 Sqn., Egypt. 6.10.23. N. H. F. Unwin and H. P. Morris, both to No. 24 Sqn., Kenley. 1.11.23. G. C. B. Bernard Smith, to No. 4 Sqn., S. Farnborough. 23.10.23. A. S. Hutton, to remain at No. 1 Flying Training Sch., Netheravon. Posting to No. 24 Sqn., as previously notified, is hereby cancelled.

Accountants' Branch

Squadron Leader J. Rylands, to H.Q., Egypt; Sept. 25. *Pilot Officer* R. W. L. Glenn, to No. 208 Sqn., Egypt; Sept. 23.

Medical Branch

Flight Lieutenant V. R. Smith, to No. 216 Sqn., Egypt. 10.10.23. *Flying Officer* W. J. Hutchinson, M.B., to R.A.F. Depot. 5.11.23.

PERSONALS

Married

Lieut.-Col. S. JANSON, late R.A.F., was married to Miss DOROTHY MARY BUSHBY, at the Chapel Royal, Savoy, on October 23.

Mr. FRANCIS ARTHUR SWOFFER, M.B.E., R.A.F., and Miss ESTHER JOAN FESTING-SMITH, daughter of the late Dr. A. C. Festing-Smith and the Hon. Mrs. Winterbotham, and grand-daughter of Lord Kingsale, were married on October 27, at St. Luke's, Cheltenham.

To be Married

The engagement is announced of EDMUND L. MAYALL EMTAGE, of the Directorate of Research, Air Ministry, only son of the late Dr. Edmund Emtage and Mrs. Emtage, formerly of Cleverdon House, Bradworthy, Devon, and LOUISA GUYETTA (ETTA) CROSSMAN, youngest daughter of Mr. Thomas J. Crossman, C.C., and Mrs. Crossman, of Pines, Torquay.

The engagement is announced of CLARENCE EDWARD WILLIAMSON JONES, D.F.C., R.A.F., elder son of Mr. and Mrs. J. Williamson Jones, of Tyndal Lodge, Bournemouth, and HELEN ELIZABETH, daughter of Mr. and Mrs. ANDREW MACLELLAN, of 4, Belhaven Terrace, Glasgow, W.

SOCIETY OF MODEL AERONAUTICAL ENGINEERS

On November 8, at 8 p.m., Mr. B. K. Johnson, the Assistant Technical Secretary, will give a lecture, illustrated by lantern slides, on "The Outdoor Work of the S.M.A.E. during 1923, as seen by the Camera." This lecture will be given in the British Empire Room, London Central Y.M.C.A., Tottenham Court Road, W.C. 1. Members will be allowed to bring one visitor (lady or gentleman).

On Saturday, November 17, a competition will be held at Wimbledon Common, at 2.30 p.m., to compete for the "D. H. Pilcher" Challenge Cup (see page 17 of Programme for 1923).

This should have been held on Saturday, October 27, but has been postponed to November 17.

Competitors who are desirous of entering the *Model Engineer* Competitions (which are open competitions) should apply at once to the Competition Secretary, Mr. C. Bayard Turner, 21, Lanercost Road, Tulse Hill, S.W. 2, for full particulars and entry forms. If sufficient entries are received by November 15 arrangements will be made for competitors' models to be judged on Wimbledon Common on November 17.

A. E. JONES, Hon. Sec.

Air Mail Revisions

THE Postmaster-General announces that since October 26 the letter air mails from London to Bremen, Hamburg, and Berlin have been discontinued for the winter.

The aeroplanes conveying mails between France and Morocco (Toulouse-Casablanca) now call at Tangier daily in each direction. All kinds of postal packets (except parcels) for Tangier should, therefore, whatever the time or place of posting in this country, benefit considerably by the use of the Air Mail Service. The special air fee payable on packets for any part of Morocco (including Tangier) forwarded by this service is as follows: For letters, etc., weighing up to ½ oz., 3d.; up to 3½ ozs., 6d.; for each additional 3½ ozs. an additional 3d.

Sadi Once More

ON Wednesday last, at Issy-les-Moulineaux, Sadi Lecointe improved on his previous altitude record of 25,355 ft. by attaining an altitude of 36,960 ft., or just seven miles. His flight is stated to have lasted about two hours.

How France Does It

Two big prizes are being offered, through M. Eynac, by France for competition some time next year, each of two million francs. The first will be for transport or commercial aeroplanes, and the other for seaplanes.



By DOUGLAS B. ARMSTRONG

U.S. Night Flights

As much as \$5 and \$10 apiece is already being asked in America for "flown" covers carried on the Government experimental night mail flights from New York to San Francisco on August 21, 22, 1923. Postal planes left both cities on the night of the 21st, and letters posted in New York at 9 a.m. on that date were received in San Francisco at 6.30 p.m. on the 22nd. No distinguishing mark was applied to air mail letters originating in New York, so that the timed postmarks are the only guide. At the San Francisco end, however, some letters were impressed with the seal of the U.S. Air Mail Service, as shown on the latest 16 cents air stamp, whilst at Cheyenne, Wyoming, the words "Night and Day Air Mail" were stamped in addition to the insignia.

Esthonian Air Stamps

THE inauguration of a regular air post service between Tallinn, Riga, and Konigsberg on October 2 has led to the resuscitation of the old triangular 5 marka Esthonian air stamp, originally issued in 1920, for use in the short-lived service between Reval and Helsingfors, during the ice-bound season. The re-issue is overprinted in red with the date "1923," and, in addition, four new values have been extemporised by surcharging the same stamp, viz.: 10 marka in black on pair of 5 marka; 15 marka in red on 5 marka; 20 marka in red on pair of 5 marka; 45 marka in red on pair of 5 marka. In some cases new printings appear to have been made, as the shades show considerable variation. The 5 and 10 marka stamps are for inland use, and the higher values for international postage. Of the 45 marka value less than 10,000 copies are said to have been printed.

Russian Air Posts

THE Russian 45 roubles stamp overprinted with a red aeroplane in outline, and used for a time in the Moscow-Berlin service, is proving an elusive item, and on "flown" cover is undoubtedly worth more than its present market quotation.

One of the scarcest of European air stamps is, of course, that surcharged on Russian fiscal stamps, and used provisionally upon official correspondence despatched from the Russian Mission in Berlin via Konigsberg and Smolensk in July, 1922, before the opening of the regular Berlin-Moscow air line. There are four values in the series uniformly overprinted in Russian characters reading "Air Post R.S.F.S.R.," and surcharged with the following values in German marks: 12 mk. on 2.25 rbls., rose and purple on green; 24 mk. on 3 rbls., green and red on pink; 120 mk. on 2.25 rbls., rose and purple on green; 600 mk. on 3 rbls., green and red on pink; 1,200 mk. on 10 rbls., rose and violet on green. Only 50 copies of the 1,200 mk. are believed to exist, and the other denominations are almost equally scarce.

A fortnightly air post is in operation between Tiflis (Georgia) and Moscow, but no distinctive stamps are employed at present, air postage being prepaid in the current stamps of the Republic, bearing high values in surcharge.

"Air Post Bulletin"

THE first number is before us of a monthly journal devoted entirely to aero-philately. Its title is the *Air Post Bulletin*, and it is a "house organ" published by Mr. Alan Turton, the air post specialist. The principal article in the October issue is an interesting account of the trans-Atlantic flights of 1919, over the signature of H. C. Harford, in the course of which he describes a very clumsy attempt to counterfeit the rare "Hawker" stamps. "Some Notes of the Month" and a useful priced catalogue of air post stamps and covers completes a commendable No. 1, Vol. I.

Readers are invited to forward to the Editor of *FLIGHT* letters, etc., bearing aerial stamps or postmarks for mention in this column, as well as out-of-the-way varieties, etc.

We shall also be pleased to hear from correspondents interested in air-stamp collecting, and to answer any queries.

PUBLICATIONS RECEIVED

The Original Book of the Ford. 8th Edition. By R. T. Nicholson. London: Temple Press, Ltd. Price 2s. 6d. net.

The Causes of Rapid Corrosion of Condenser Tubes. By G. D. Bengough, R. May and R. Pirret. North-East Coast Institution of Engineers and Shipbuilders, Bolbec Hall, Newcastle-upon-Tyne.

Goodwill in Industry. By the Rt. Hon. J. R. Clynes, M.P. The British Commercial Gas Association, 30, Grosvenor Gardens, S.W. 1.

Regulations for Short Service Commissions in the Royal Air Force (General Duties Branch). Air Publication 793. London: H.M. Stationery Office, Kingsway, W.C. Price 2d. net.

Forecasting Weather. By Sir Napier Shaw, F.R.S., Sc.D. 2nd Edition. London: Constable and Co., Ltd. Price 36s. net.

Official Gazette of the United States Patent Office, September 11, 1923. United States Patent Office, Washington, D.C., U.S.A. Vol. 314, No. 2.

Annual Report of the Smithsonian Institution, 1921. The Smithsonian Institution, Washington, D.C., U.S.A.

Over the Balkans and South Russia: being the History of No. 47 Squadron, Royal Air Force. By H. A. Jones, M.C. London: Edward Arnold and Co. Price 10s. 6d. net.

Report of the Oxygen Research Committee. Department of Scientific and Industrial Research. London: H.M. Stationery Office, Kingsway, W.C. Price 8s. 6d. net.

Aerial Haze and Its Effect on Photography from the Air. Monographs on the Theory of Photography from the Research Laboratory of the Eastman Kodak Company, No. 4. Kodak, Ltd., Kingsway, London, W.C. 2.

The British Engineer's Home and Export Journal. Vol. V, No. 7.—October, 1923. London: Engineering Publications, Ltd., 32, Victoria Street, S.W. Price 1s.

Aeronautical Research Committee Reports and Memoranda:—No. 783 (M. 8). Report on the Effects of Over-heating and Repeated Melting on Aluminium. By Dr. W. Rosenhain and J. D. Grogan. May, 1922. Price 6½d., post free.

No. 820 (Ae. 70). Stresses in a Stiff Jointed Polygonal Frame under a System of Parallel Loads. By A. J. Sutton Pippard. August, 1922. Price 6½d., post free. (H.M. Stationery Office.)

Catalogues

Lighting Service.—Factory lighting designs. The British Thomson-Houston Co., Ltd., 15, Savoy Street, London, W.C. 2.

Welconstruct Slotted Steel. Constructors, Ltd., 4, Brook Street, St. Paul's, Birmingham.



AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1922

Published November 1, 1923

- 9,488. H. A. BERLINER. Helicopters. (204,729.)
9,546. AERONAUTICAL INSTRUMENT COMPANY. Direction-finding devices. (191,695.)
9,547. AERONAUTICAL INSTRUMENT COMPANY. Direction-finding devices. (184,773.)
18,916. SOC. ANON. DES AEROPLANES G. VOISIN. Apparatus for inspection and control of sparking-plugs. (182,816.)
19,768. LUFTSCHIFFFAU ZEPPELIN GES. Anchoring device for airships. (183,469.)
27,888. H. J. DOLNAN. Revolving cyl. I.C. engines. (204,914.)
31,520. RAUL, MARQUIS OF PATERAS PESCARA. Double-acting motors of the two-stroke type. (189,145.)

APPLIED FOR IN 1923

Published November 1, 1923

- 1,239. W. BEENEY. Divisible rim for wheels of aircraft, etc. (204,995.)
1,971. SOC. RATEAU. Pressure-feed compressors of pressure-fed aircraft engines. (193,016.)

FLIGHT

The Aircraft Engineer and Airships

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